ECIC 2013 Call for Sessions

Title:

"Real-Time" Treatment Optimization Utilizing In-Situ Chemical Oxidation

Abstract:

Geo-Cleanse International, Inc. was contracted by Hudson Environmental Services, Inc. (Hudson) to design and implement an in-situ chemical oxidation (ISCO) treatment program at a southern NJ fertilizer facility. The fertilizer facility property included a 77,700 ft^2 clay-lined lagoon, which was utilized for onsite storage of washwater from liquid fertilizer tanker trucks and spray trucks. Hudson was initially retained by the property owner to characterize the contents of the lagoon and complete an initial investigation of the property. Soil and groundwater investigations concluded that volatile organic compounds, metals, pesticides and herbicides were above the NJDEP Remediation Standards. The lagoon and surrounding unsaturated zone soil contamination was excavated and additional delineation was conducted to determine the extent of the groundwater plume.

Hudson determined that onsite and offsite groundwater was impacted primarily with chlorobenzene. Several treatment technologies were considered, but due to the contaminant of concern, desired timeframe to reach the cleanup goal, and the shallow groundwater table (approximately 2 feet below grade), in-situ chemical oxidation was determined to be the most appropriate remedial approach. Hudson contracted Geo-Cleanse to conduct bench-scale tests to evaluate two potential oxidants, sodium persulfate and catalyzed hydrogen peroxide (CHP). Based on the bench test results, CHP was selected as the oxidant to remediate the chlorobenzene plume. Using direct push drill rigs, a total of 230 injection wells were installed to remediate the shallow aquifer, which was existed between approximately 2 and 10 feet below grade. Vent wells were also installed to provide assurance that off-gases did not accumulate beneath the subsurface. In-situ chemical oxidation with CHP was applied to the treatment area. Post-treatment results have confirmed reductions in chlorobenzene to below NJDEP Groundwater Quality Standards (50 ug/L), and a No Further Action letter has been received.

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